

## **ABSTRACT OF THE DISCLOSURE**

A vapourised flow quenching reactor for producing a fine-powder from one or more reactant materials. The reactor comprises a first heat source selected from one of a DC plasma torch and RF plasma torch, a first reaction chamber within which energized reactant materials react and a first convergent-divergent nozzle for quenching the heated reactant materials from the first reaction chamber. The reactor also comprises a second reaction chamber provided for congregation of nano particles formed therefrom and a second convergent-divergent nozzle to deliver the nano particles to a collection chamber.